
















GENERAL NOTES
















1. THIS DESIGN PROVIDES A FIRE DETECTION AND FIRE ALARM SYSTEM FOR THE ANIMAL CARE FACILITY. THE DESIGN PROVIDES A NEW SIEMENS MXLR FIRE ALARM CONTROL UNIT AS THE BUILDING'S CONTROL UNIT (NO EQUAL WILL BE ACCEPTED), PHOTOELECTRIC SMOKE DETECTORS (FOR PROTECTION OF THE AREAS SHOWN IN THE DRAWINGS), DUCT-TYPE SMOKE DETECTORS (FOR BUILDING HVAC FAN SHUTDOWN), HIGH SENSITIVITY SMOKE DETECTION (AS SHOWN IN THE DRAWINGS) WATERFLOW AND VALVE POSITION SUPERVISION, MANUAL FIRE ALARM PULL STATIONS, AUDIBLE/VISUAL, AND VISUAL NOTIFICATION APPLIANCES. ALL INITIATING DEVICES & NOTIFICATION APPLIANCES SHALL BE COMPATIBLE WITH THE NEW SIEMENS FIRE ALARM CONTROL UNIT (FACU). THE DEVICES AND APPLIANCES SHALL BE PROVIDED AND INSTALLED AS INDICATED IN THE DRAWINGS, NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 72, NATIONAL FIRE ALARM CODE, AND THE SYSTEM SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S LISTINGS AND APPROVALS.
2. ALL FIRE ALARM SYSTEM RACEWAY (E.G. CONDUIT) SHALL BE PROVIDED IN ACCORDANCE WITH THE UNIVERSITY'S STANDARDS AND THESE CONTRACT DOCUMENTS. ALL CONDUIT SHALL BE ROUTED CONCEALED IN FINISHED AREAS, UNLESS ACCEPTED BY THE UNIVERSITY. CONDUIT ROUTED ABOVE DROP CEILING SYSTEMS SHALL BE INSTALLED AT A HEIGHT PERMITTING THE EASY REMOVAL OF THE CEILING TILE (E.G. CONDUIT SHALL NOT BE INSTALLED ABOVE THE TILE TO PREVENT EASY LIFTING FOR ACCESS). EXPOSED CONDUIT IN FINISHED AREAS SHALL BE PAINTED. CONDUIT IN UNFINISHED AREAS MAY BE UNPAINTED.
3. THESE DRAWINGS ARE DIAGRAMMATIC IN THAT EXACT DEVICE, APPLIANCE, AND EQUIPMENT LOCATIONS, CONDUIT ROUTING, CONDUIT SUPPORT AND CONSTRUCTION DETAILS ARE TO BE DEVELOPED BY THE SUBCONTRACTOR.
4. THE RISER DIAGRAMS ARE DIAGRAMMATIC AND REPRESENT FEASIBLE CONNECTIVITY. REMOTE POWER SUPPLIES ARE SHOWN. THE SUBCONTRACTOR MAY MODIFY THE CONNECTIVITY TO SUIT FIELD CONDITIONS PROVIDED THAT THE NOTIFICATION APPLIANCE AND SIGNALING LINE CIRCUIT LOADS DO NOT EXCEED THOSE SPECIFIED IN THE LISTINGS AND APPROVALS FOR EACH MANUFACTURER'S PIECE OF EQUIPMENT.
5. THE FACU SHALL BE LOCATED AS SHOWN IN THE DRAWING (ELECTRICAL ROOM). THE MXLR SHALL BE INSTALLED AT A HEIGHT SUCH THAT THEIR VISUAL DISPLAYS ARE AT A HEIGHT OF 5'-6". THE MXLR SHALL COMMUNICATE TO AN EXISTING MXL CONTROL UNIT LOCATED IN BUILDING 84 VIA A SIEMENS NET 7 NETWORK INTERFACE CARD IN THE EXISTING MXL CONTROL UNIT. THE SUBCONTRACTOR SHALL PROVIDE THE NECESSARY AND APPROPRIATE COMMUNICATION CABLING BETWEEN THE NEW MXLR CONTROL UNIT AND THE EXISTING MXL CONTROL UNIT IN BUILDING 84. THE UNIVERSITY WILL PROVIDE FOR THE CONNECTION OF THE NEW DATA CABLES TO THE EXISTING MXL CONTROL UNIT.
6. ANY FIRE ALARM SIGNAL SHALL CAUSE ALL AUDIBLE NOTIFICATION APPLIANCES TO OPERATE CONTINUOUSLY IN ACCORDANCE WITH THE UNIVERSITY'S REQUIREMENTS. ANY FIRE ALARM SIGNAL SHALL ALSO CAUSE AN ALARM SIGNAL TO BE TRANSMITTED TO THE UNIVERSITY'S RECEIVER VIA THE NEW COMMUNICATION LINK TO THE MXL CONTROL UNIT IN BUILDING 84.
7. ANY SUPERVISORY OR TROUBLE SIGNAL SHALL CAUSE A LOCAL ALARM AT THE FACU TO OPERATE. ANY SUPERVISORY OR TROUBLE SIGNAL SHALL ALSO CAUSE A SUPERVISORY/TROUBLE SIGNAL TO BE TRANSMITTED TO THE UNIVERSITY'S RECEIVER VIA THE MXL IN BUILDING 84.
8. ALL WIRING SHALL BE INSTALLED IN COMPLIANCE WITH THE CALIFORNIA ELECTRICAL CODE (SPECIFICALLY ARTICLE 760) AND NFPA 72, NATIONAL FIRE ALARM CODE.
9. NO WIRING SHALL BE EXPOSED. CONDUIT SHALL BE USED. WIRING WITHIN ENCLOSURES SHALL BE NEATLY BUNDLED AND STRAPPED OR FASTENED TO THE ENCLOSURE OR ENCLOSURE DOORS.
10. IN SUB-PANELS OR ENCLOSURE SURFACES, WIRING CONNECTED TO HINGED DOORS SHALL BE BUNDLED AND SLEEVED IN A FLEXIBLE PLASTIC TUBING TO PERMIT OPENING AND CLOSING OF THE DOOR WITHOUT STRAINING WIRING AND WITHOUT ABRASION OF WIRE INSULATION.
11. NO CABLE SHALL BE INSTALLED IN VENTILATION DUCTS OR PLENUMS WITHOUT SPECIFIC PRIOR WRITTEN APPROVAL OF THE UNIVERSITY'S REPRESENTATIVE.
12. NO CLASS 2 OR 3 SIGNAL WIRING SHALL BE INSTALLED IN CONDUIT WITH LIGHT, POWER, OR CLASS 1 SIGNAL WIRING.
13. ALL WIRING, EXCEPT WIRING INSIDE ENCLOSURES, SHALL BE CABLED WITH A THERMOPLASTIC INSULATION JACKET, WITH A VOLTAGE RATING EXCEEDING THE VOLTAGE OF ANY POWER IN PROXIMITY TO THE WIRING.
14. ALL SIGNAL WIRING SHALL BE OPERATED AT NOT MORE THAN 30 VOLTS, AC OR DC.
15. THE DESIGN SHOWS THE NEW MXLR POWER SUPPLY AS THE SOURCE OF POWER FOR ALL OCCUPANT NOTIFICATION APPLIANCES. IF ADDITIONAL, OR REMOTE, POWER SUPPLIES ARE NECESSARY (OR DESIRED BY THE SUBCONTRACTOR TO ACCOMMODATE LONG RUNS) TO ADEQUATELY POWER ALL NOTIFICATION APPLIANCES, THEY SHALL BE PROVIDED AND INSTALLED BY THE SUBCONTRACTOR AT NO ADDITIONAL COST TO THE UNIVERSITY. ANY NEW OR SECOND POWER SUPPLY MUST BE IN ACCORDANCE WITH THE MANUFACTURER'S LISTINGS AND APPROVALS AND MUST BE APPROVED BY THE UNIVERSITY.
16. ANY FIRE ALARM DEVICE LOCATED IN A CONCEALED LOCATION SHALL BE PROVIDED WITH A REMOTE ALARM INDICATOR. THE REMOTE ALARM INDICATOR SHALL BE LOCATED IN A READILY VISIBLE LOCATION IN THE VICINITY OF THE CONCEALED DEVICE.

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LEGEND

L1-01		SMOKE DETECTOR, ADDRESS AS NOTED		HIGH SENSITIVITY SMOKE DETECTOR (HSSD)
L1-02		DUCT SMOKE DETECTOR, ADDRESS AS NOTED		HSSD SAMPLE PIPING AND SAMPLE ORIFICE
L1-03		FIRE CALL BOX, ADDRESS AS NOTED		END-OF-LINE DEVICE
V-01		FIRE ALARM SYSTEM CONTROL UNIT (MXL)		JUNCTION BOX
A-01		STROBE, NUMBER & MINIMUM CANDELA RATING		FIRE ALARM CONDUIT (3/4-INCH)
L1-05		HORN/STROBE, NUMBER AND MINIMUM CANDELA		FIRE ALARM CIRCUIT IDENTIFICATION
L1-05		SPRINKLER VALVE SUPERVISORY SWITCH, ADDRESS AS NOTED	L1	1 PAIR; SLC/ALD LOOP (L1)
L1-06		SPRINKLER WATERFLOW SWITCH, ADDRESS AS NOTED	A1	1 PAIR #14; AUDIBLE CIRCUIT
		INTELLIGENT INTERFACE MODULE	V1/V2	1 PAIR #14; VISUAL CIRCUIT
				(TYPICAL UNO) - TYPICAL UNLESS NOTED

LEGEND

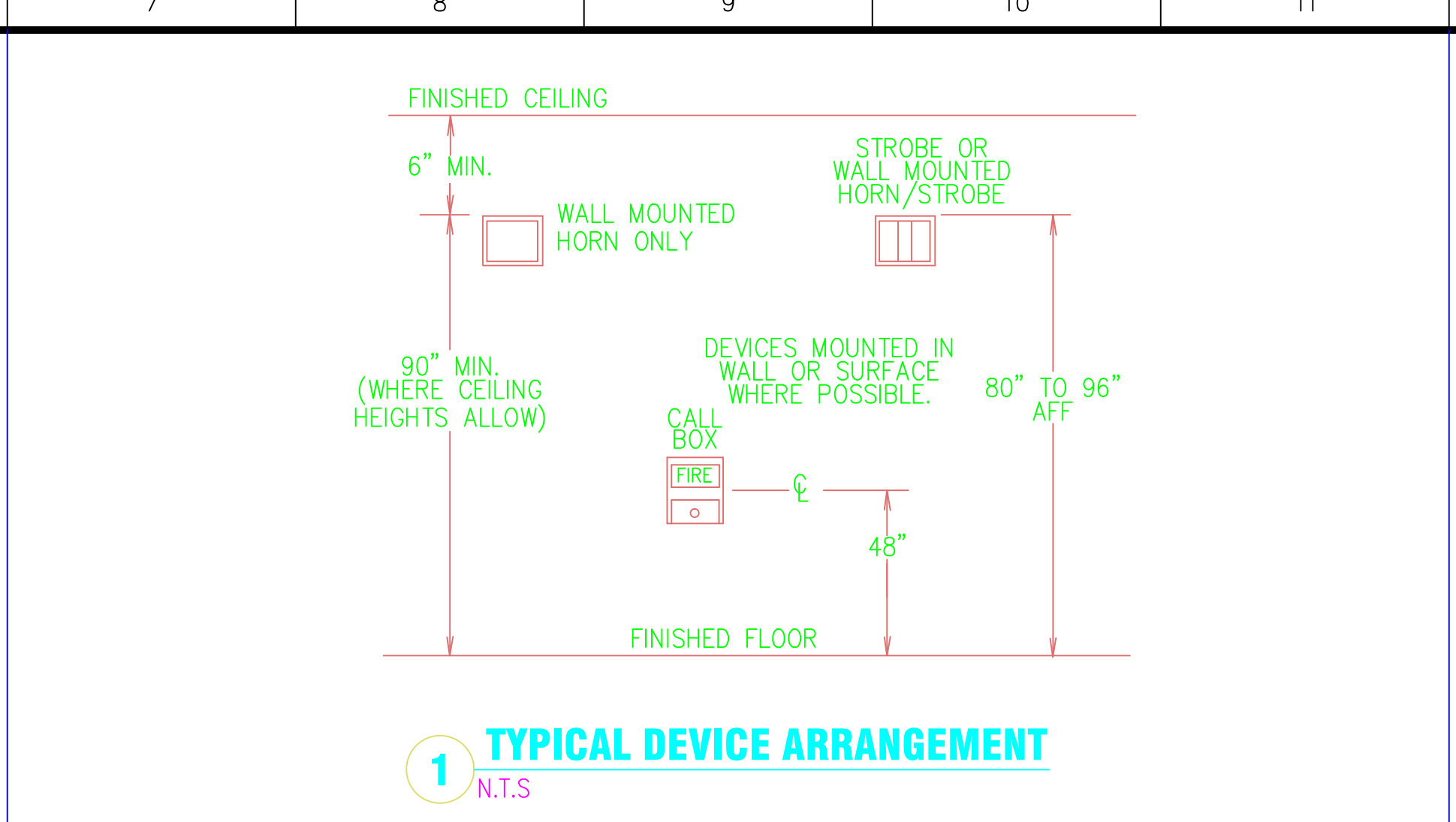
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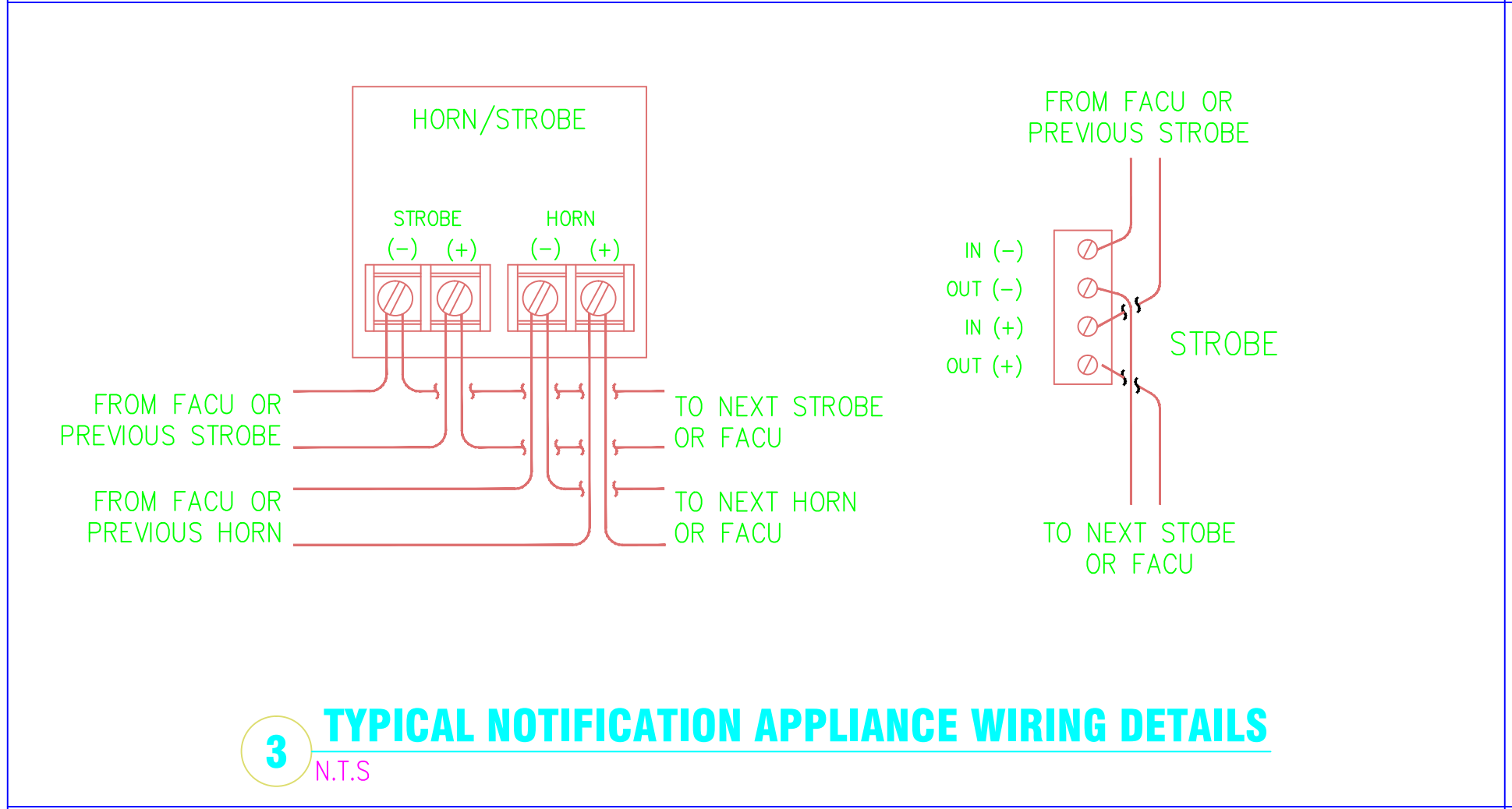
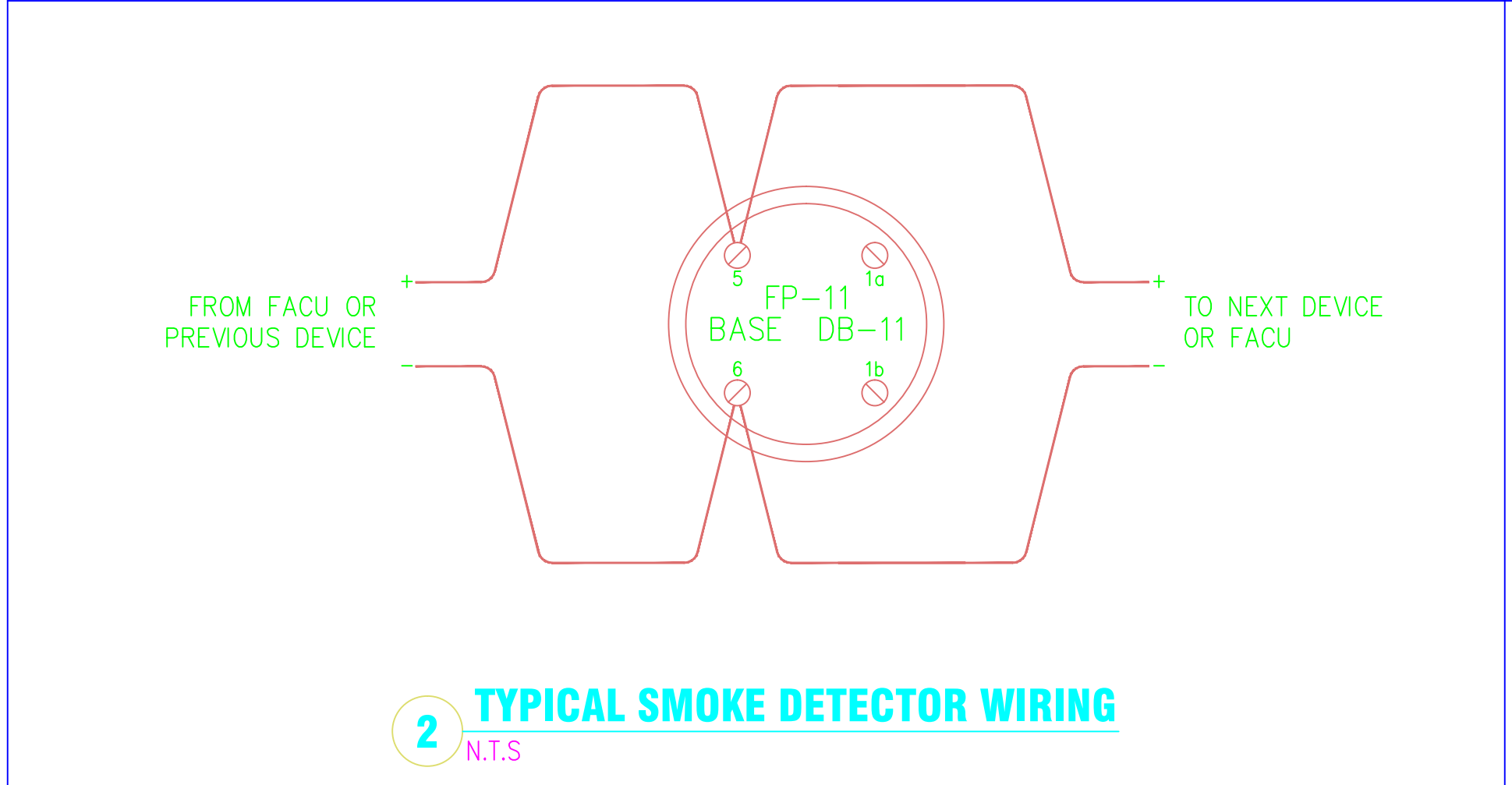
SYSTEM EVENT	RESPONSE										
	ANNUNCIATE FIRE CALL BOX	ANNUNCIATE SMOKE DETECTOR	ANNUNCIATE FIRE SPRINKLER WATER FLOW SWITCH	ROOM HSSD DETECTION (LEVELS 1 & 2)	ROOM HSSD DETECTION (LEVEL 3)	"BUBBLE" HSSD DETECTION (LEVELS 1 & 2)	"BUBBLE" HSSD DETECTION (LEVEL 3)	HVAC DUCT SMOKE DETECTOR	VALVE POSITION SUPERVISORY SWITCH	AC POWER FAILURE	SYSTEM FAULT
ANNUNCIATE FIRE CALL BOX	●	●									
ANNUNCIATE SMOKE DETECTOR	●	●									
ANNUNCIATE FIRE SPRINKLER WATER FLOW SWITCH	●	●									
ROOM HSSD DETECTION (LEVELS 1 & 2)	●			●							
ROOM HSSD DETECTION (LEVEL 3)	●	●			●						
"BUBBLE" HSSD DETECTION (LEVELS 1 & 2)	●	●			●						
"BUBBLE" HSSD DETECTION (LEVEL 3)	●	●			●						
HVAC DUCT SMOKE DETECTOR	●	●					●				
VALVE POSITION SUPERVISORY SWITCH	●			●							
AC POWER FAILURE	●		●								
SYSTEM FAULT	●		●								

SYSTEM EVENT	RESPONSE										
	ANNUNCIATE EVENT AT FACU										
	FIRE SIGNAL TO IBN RECEIVER										
	TROUBLE SIGNAL TO IBN										
	SUPERVISORY SIGNAL TO IBN										
OPERATE NOTIFICATION APPLIANCES											
SHUTDOWN "BUBBLE" SUPPLY AIR											
SHUT DOWN HVAC FAN UNIT											
	FIRE CALL BOX	●	●					●			
	SMOKE DETECTOR	●	●					●			
	FIRE SPRINKLER WATER FLOW SWITCH	●	●					●			
	ROOM HSSD DETECTION (LEVELS 1 & 2)	●				●					
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	"BUBBLE" HSSD DETECTION (LEVELS 1 & 2)	●				●					
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	HVAC DUCT SMOKE DETECTOR	●	●							●	
	VALVE POSITION SUPERVISORY SWITCH	●				●					
	AC POWER FAILURE	●		●							
	SYSTEM FAULT	●		●							



2 **TYPICAL SMOKE DETECTOR WIRING**

N.T.S



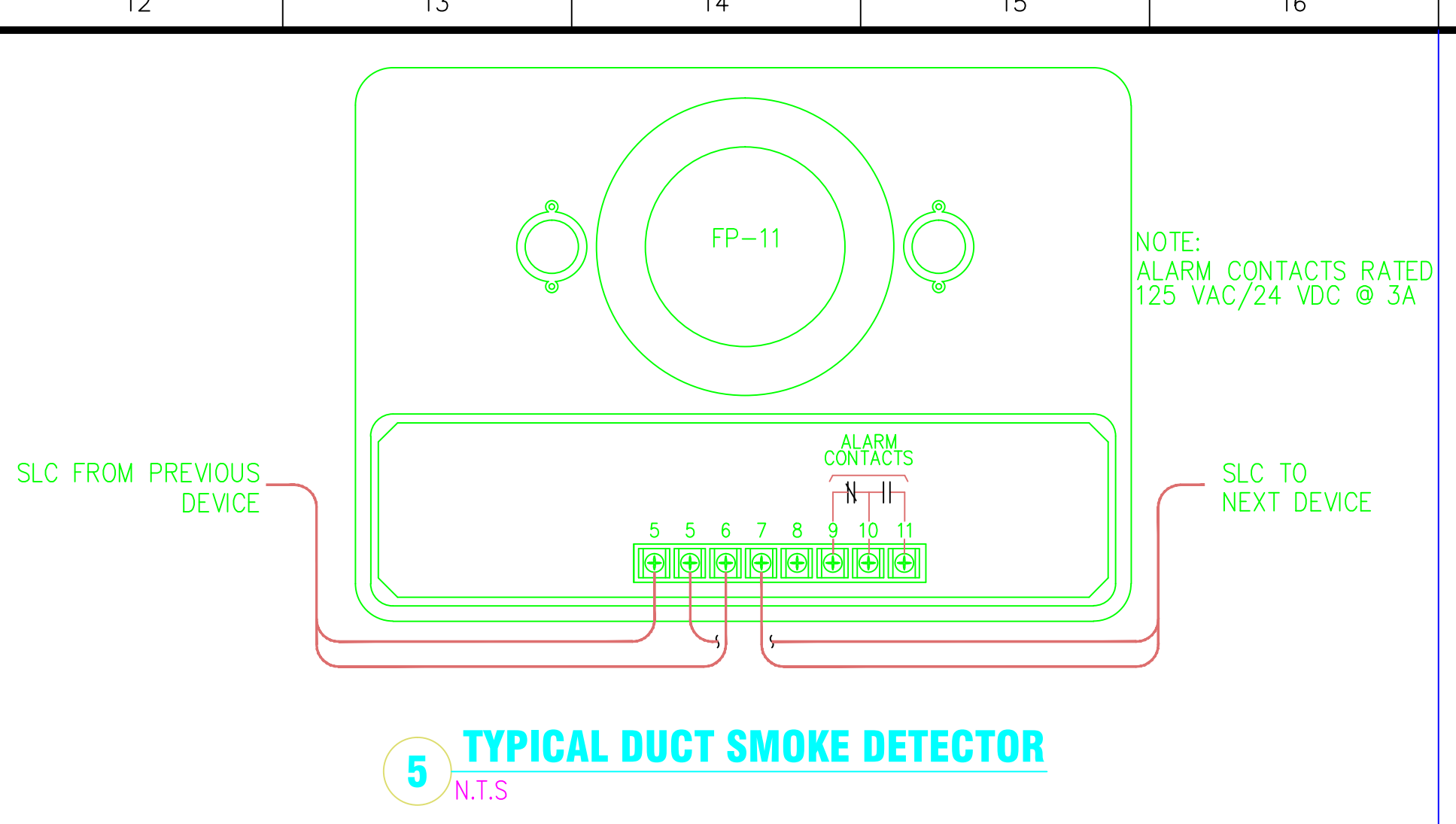
The diagram illustrates the typical wiring for two AV modules in a synch module. Each module contains an AV unit with two input channels. The first channel has inputs for SYNC (+ and -), IN 1 (+ and -), and AUDIBLE (+ and -). The second channel has inputs for IN 2 (+ and -) and MINUS 2 (-). Each channel also has an output (OUT 1 and OUT 2) and a MINUS output (MINUS 1 and MINUS 2). The SYNC inputs are connected to a common SYNC line. The IN 1 and IN 2 inputs are connected to a common IN line. The AUDIBLE inputs are connected to a common AUDIBLE line. The OUT 1 and OUT 2 outputs are connected to a common OUT line. The MINUS 1 and MINUS 2 outputs are connected to a common MINUS line. The OUT and MINUS lines are connected to the next synch module. The IN and AUDIBLE lines are connected to NAC circuits from the MXLR FACU.

NOTE:
ALARM CONTACTS RATED
125 VAC/24 VDC @ .3A

SLC FROM PREVIOUS DEVICE

SLC TO NEXT DEVICE

5 TYPICAL DUCT SMOKE DETECTOR
N.T.S.

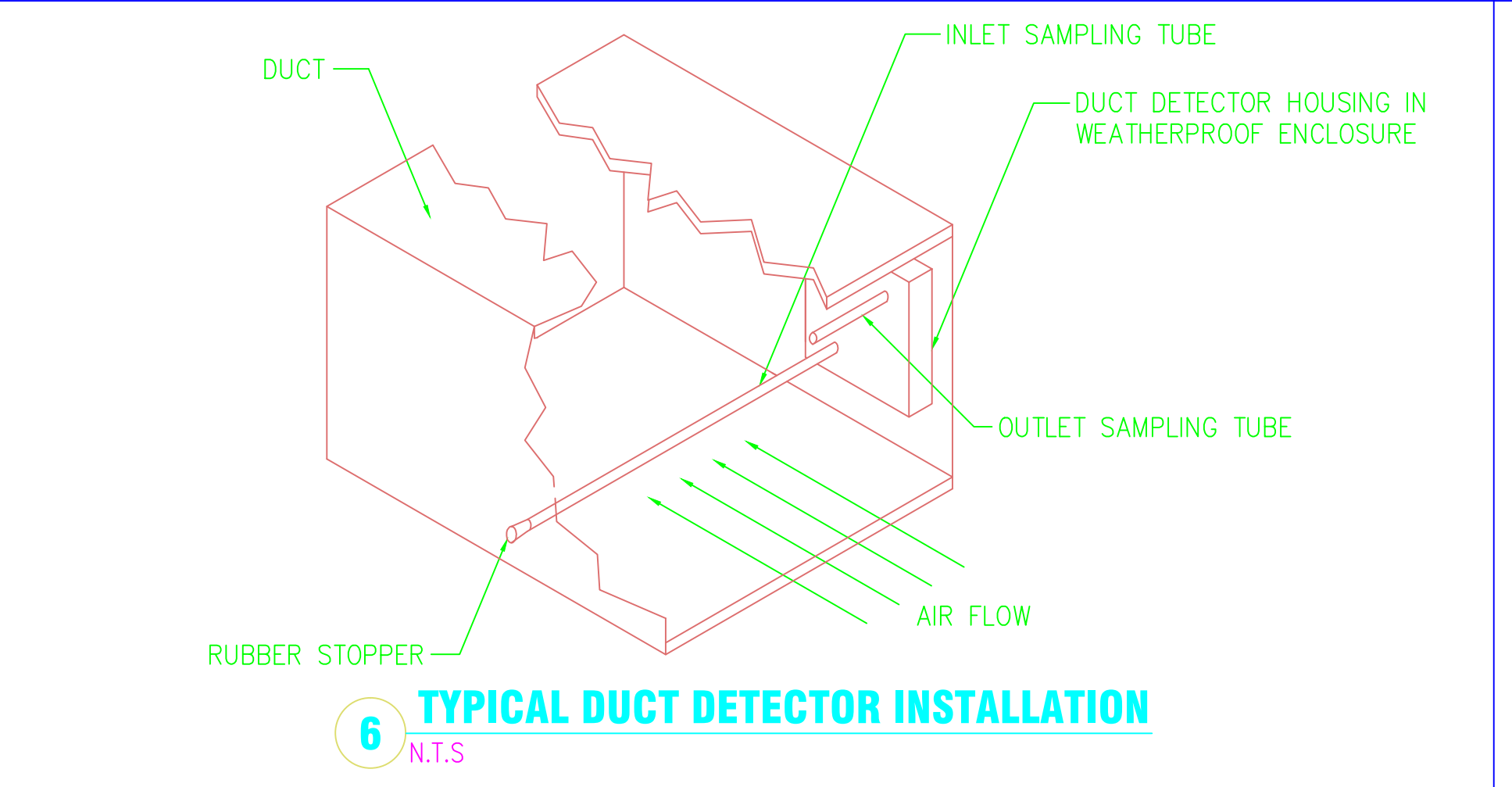


The diagram illustrates the typical installation of a duct detector. It shows a cross-section of a duct with a detector unit installed. The detector unit is housed in a weatherproof enclosure. Air flow is indicated by arrows moving from left to right through the duct. The inlet sampling tube is connected to the detector unit, and the outlet sampling tube is connected to the detector unit. A rubber stopper is used to seal the duct at the inlet. The detector unit is labeled as 'DUCT DETECTOR HOUSING IN WEATHERPROOF ENCLOSURE'.

Labels in the diagram include:

- DUCT
- RUBBER STOPPER
- INLET SAMPLING TUBE
- DUCT DETECTOR HOUSING IN WEATHERPROOF ENCLOSURE
- OUTLET SAMPLING TUBE
- AIR FLOW

6 TYPICAL DUCT DETECTOR INSTALLATION
N.T.S



4 1-INCH DETECTION PIPING OUTLETS

1.33" 1.33" 1.33" 1.31"

0.94"

1" DIAMETER EXHAUST PORT

1" DIAMETER CONDUIT KNOCKOUT (TYP. OF 2)

8.9"

MOUNTING HOLE (TYP. OF 4)

13.8"

EXHAUST PORT (TYP. OF 2)

2.75"

7 VESDA PLUS DETECTOR
N.T.S

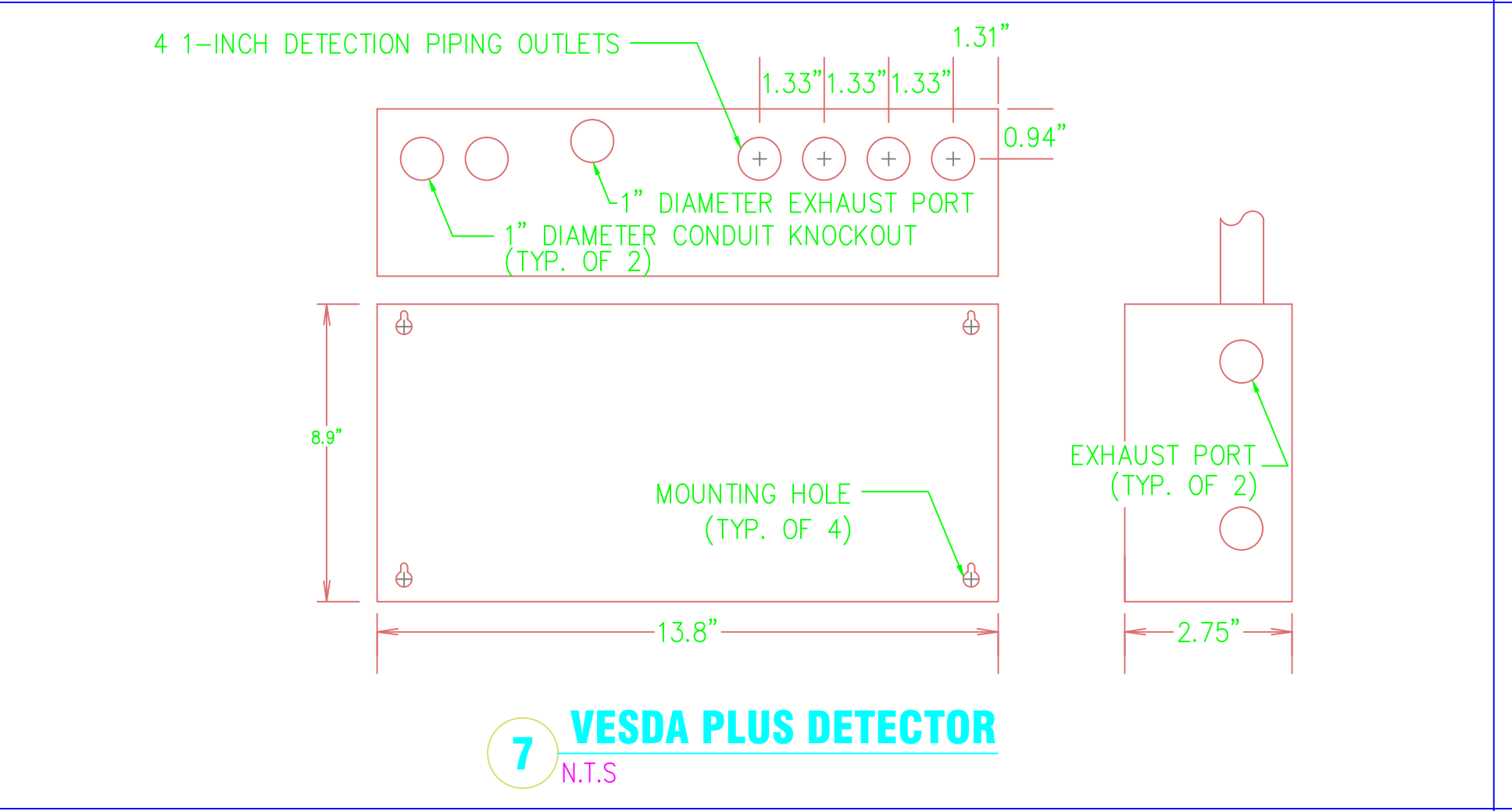


Diagram illustrating the typical fire call box wiring for the MSI-10B unit. The unit is shown with three terminals: +1, -2, and 3 (EARTH GROUND). The wiring connections are as follows:

- Red wire: TO NEXT DEVICE OR FACU
- Black wire: FROM FACU OR PREVIOUS DEVICE
- Green wire: SEE NOTES

Terminal 3 is labeled EARTH GROUND.

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Terminal 3 is labeled EARTH GROUND.

SYSTEM NO. WL1001
 F RATING - 1 & 2 HOUR
 T RATING - 0, 1, 1-1/2 & 2 HOUR

WALL ASSEMBLY 1 OR 2 HR FIRE RATED
 GYPSUM WALL BOARD/STUD WALL

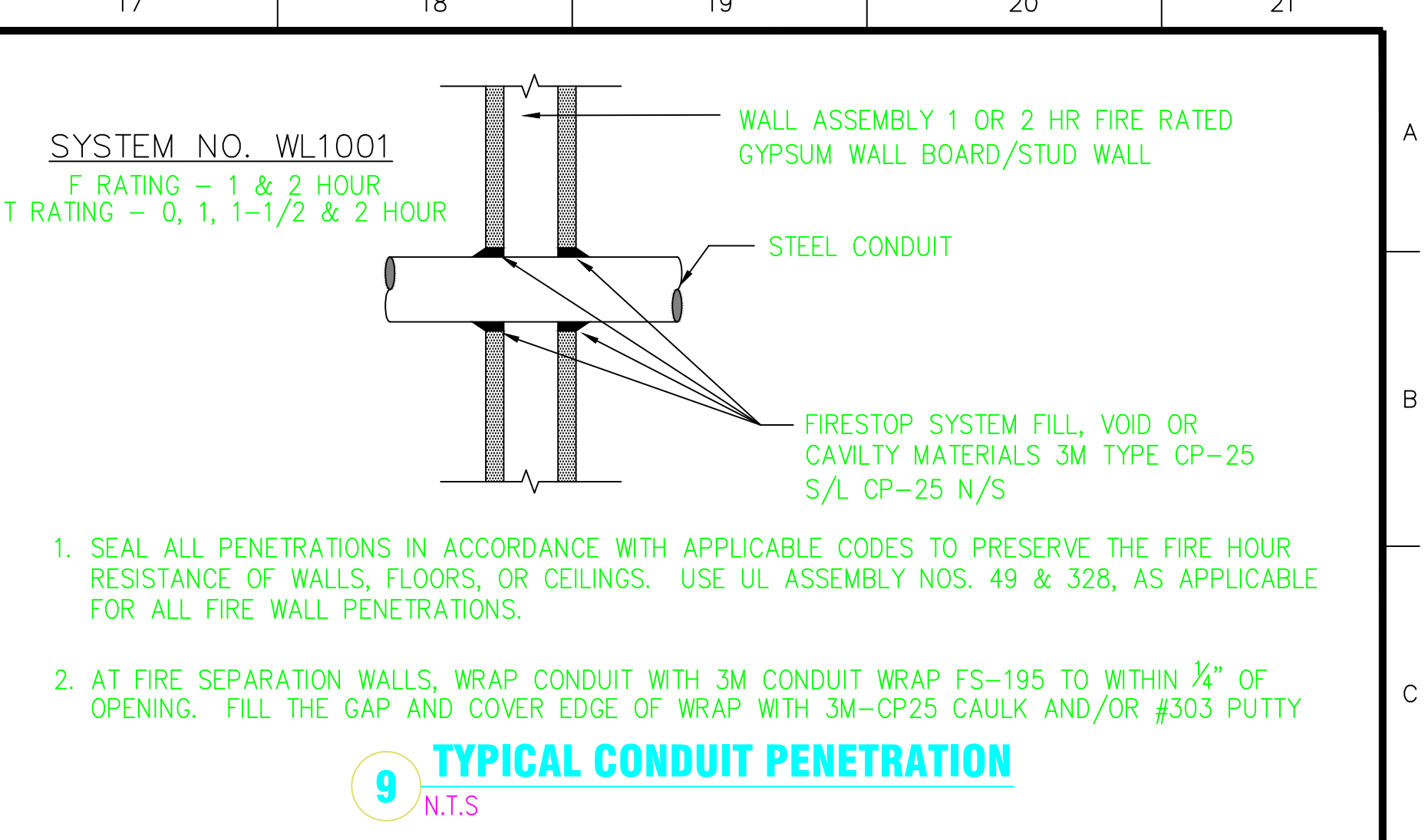
STEEL CONDUIT

FIRESTOP SYSTEM FILL, VOID OR
 CAVITY MATERIALS 3M TYPE CP-25
 S/L CP-25 N/S

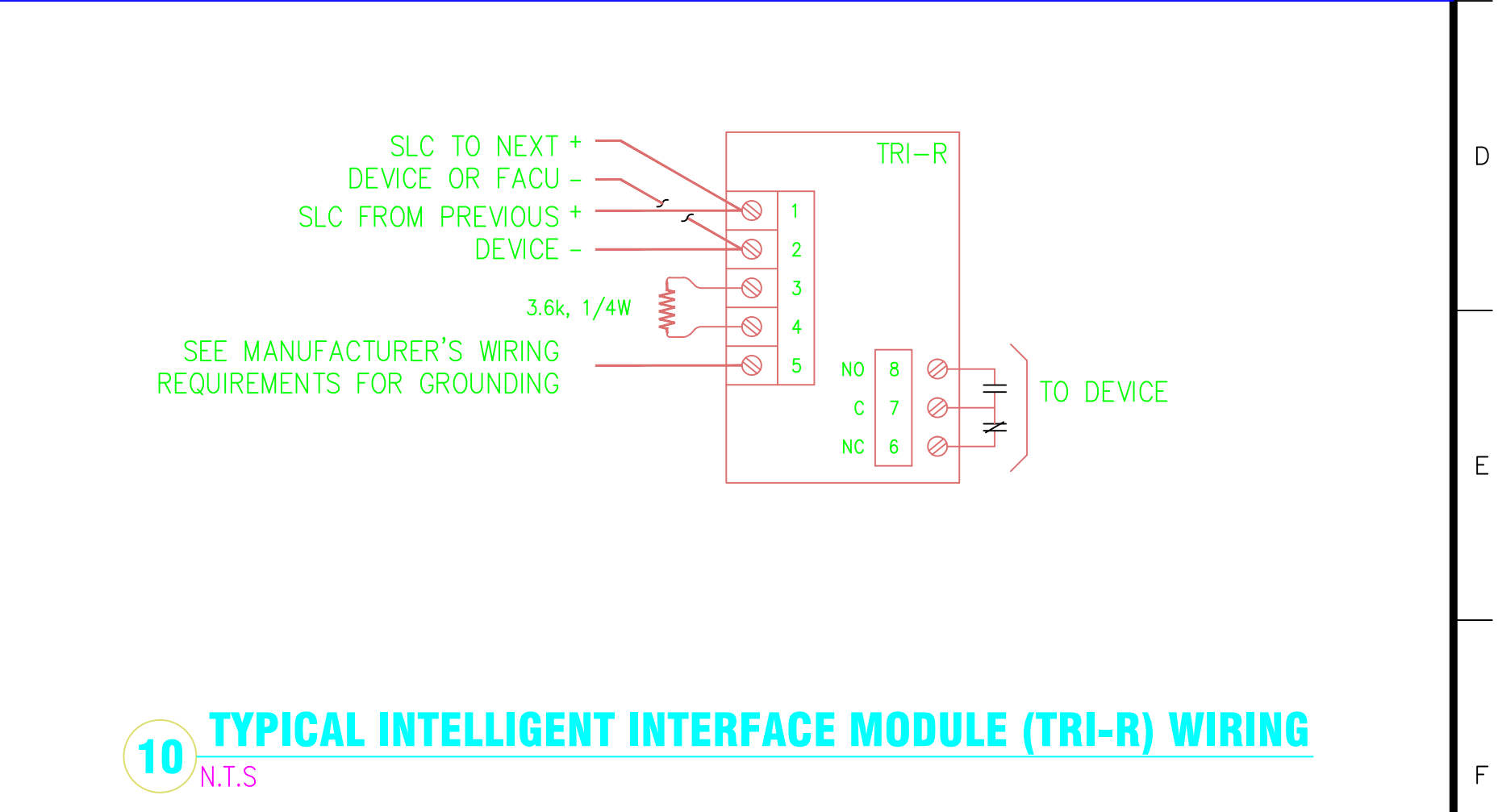
1. SEAL ALL PENETRATIONS IN ACCORDANCE WITH APPLICABLE CODES TO PRESERVE THE FIRE HOUR RESISTANCE OF WALLS, FLOORS, OR CEILINGS. USE UL ASSEMBLY NOS. 49 & 328, AS APPLICABLE FOR ALL FIRE WALL PENETRATIONS.
2. AT FIRE SEPARATION WALLS, WRAP CONDUIT WITH 3M CONDUIT WRAP FS-195 TO WITHIN 1/4" OF OPENING. FILL THE GAP AND COVER EDGE OF WRAP WITH 3M-CP25 CAULK AND/OR #303 PUTTY

9 N.T.S

2 INCH CONDUIT PENETRATION



10 **TYPICAL INTELLIGENT INTERFACE MODULE (TRI-R) WIRING**



SLC TO NEXT +

DEVICE OR FACU -

SLC FROM PREVIOUS +

DEVICE -

3.6k, 1/4W

WATERFLOW SWITCH

SEE MANUFACTURER'S WIRING REQUIREMENTS FOR GROUNDING

TRI-D

NO 8

C 7

NC 6

VALVE POSITION SUPERVISORY SWITCH

3.6k, 1/4W

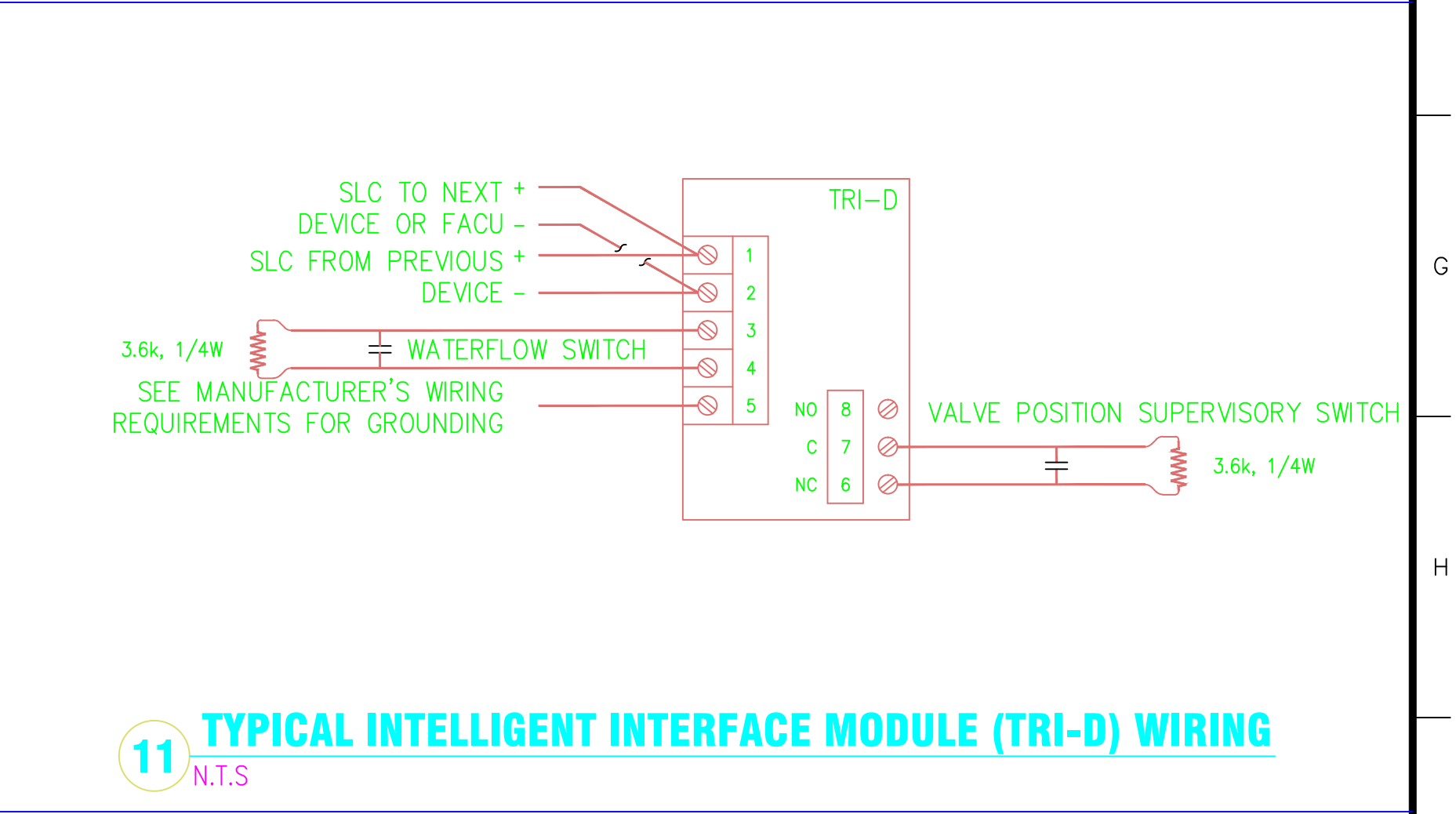
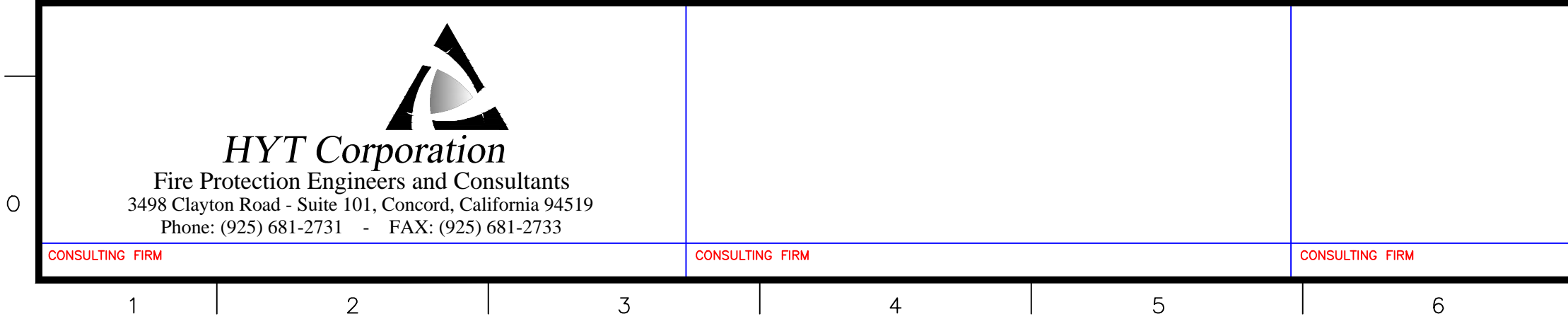



Diagram illustrating the components of Typical HSSD Piping:

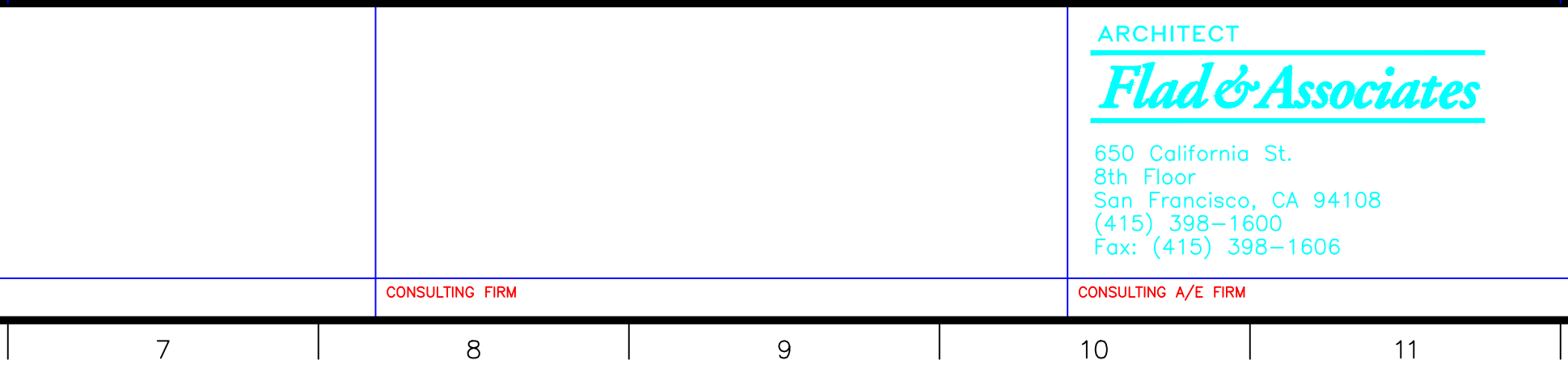
- COPPER HSSD PIPING (SIZE AS REQUIRED)
- REDUCING TEE GLUED COPPER JOINT, SIZE AS REQUIRED
- COPPER END CAP WITH ORIFICE, SIZE AS REQUIRED
- COPPER PIPE DROP TO SAMPLE ORIFICE, LENGTH AS REQUIRED
- DROPPED CEILING
- COPPER CAP WITH SAMPLE ORIFICE, SIZE AS REQUIRED

12 **TYPICAL HSSD PIPING**
N.T.S.



 <p>HYT Corporation Fire Protection Engineers and Consultants 3498 Clayton Road - Suite 101, Concord, California 94519 Phone: (925) 681-2734 - FAX: (925) 681-2733</p>					
CONSULTING FIRM		CONSULTING FIRM		CONSULTING FIRM	
1	2	3	4	5	6

				ARCHITECT <i>Flad & Associates</i> 650 California St. 8th Floor San Francisco, CA 94108 (415) 398-1600 Fax: (415) 398-1606	
CONSULTING FIRM				CONSULTING A/E FIRM	
7	8	9	10	11	



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7	8	9	10	11	

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